

Procedures for Performing Work in Computing Sector (CS) Computer Rooms

This document discusses the proper procedures and expectations for working in Computing Sector's Computer Rooms. It discusses ES&H issues, as well as logistics and security. The document contains a link to the Computer Room Hazard Analysis. Review of this procedure and its links are required every two years in order to have access to CS's Computer Rooms. Taking and passing a short, online test is required to receive credit for the review of this procedure.

List Changes:

1. Updated Contact Names

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Procedure for Performing Work in CS Computer Rooms

Persons whose work requires entrance to our computer rooms must read this document and take the [Online Test](#). Once you have passed this test, you may request ID card access to a computer room(s). (Note: you will have to retake this training whenever your Fermilab ID card is renewed with a new expiration date.)

Personal Accountability

Persons who work in CS Computing rooms are responsible for their actions and those of subcontractors who do work for them. These procedures and work rules are intended to reduce the chance of mistakes and unintended events which can cause harm to individuals or negatively impact computing services.

Safety

This document is in conformance to Fermilab's Integrated Safety Management and Hazard Analysis procedures which integrate safety into all aspects of Fermilab work. Following this procedure is of paramount importance for protecting your safety, the safety of others and the mission of the Computing Sector.

The most frequent safety problems in our computer rooms have been the presence of combustibles, open/unseated floor tiles and incorrect use of electrical outlets. Combustibles must not be stored in the computer rooms. Bringing combustibles into a computer room on a temporary basis must first be coordinated with Data Center Operations as identified in work rule #8. Computer room open floor tiles can result in serious personal injury and are covered in work rule #6. Plugging into electrical outlets for computing equipment must be arranged in advance with Data Center Operations as stated in work rule #3.

Computer Room Safety Systems

The Computing Sector manages seven computer rooms; two are in the Feynman Computing Center building (FCC2 and FCC3), and four in the Grid Computing Center (GCC) (A, B, C and tape robot room). These rooms are equipped with fire protection and suppression systems as required by the National Fire Protection Association's current "Standard for the Protection of Electronic Computer/Data Processing Equipment", NFPA 75, 2013 ed. In addition, there are two networking rooms in GCC, Network Room A (NRA) & Network Room B (NRB) and a room in Wilson Hall, WH8W (fiber central). For a list of fire safety systems in each room, see Appendix A.

Emergencies

All computer rooms are equipped with smoke detectors, fire alarms with strobe lights and sprinklers. A manual, under the floor, halon system is installed in FCC2 and will only be discharged at the discretion of the fire department. FM200 gas suppression systems are used in tape robots.

All of the computer rooms have an automated/manual emergency power off (EPO) buttons located at main exit doors. These buttons are recessed and surrounded by a collar to help prevent accidental activation. Most have covers that must be opened to expose the button. Depressing one of these buttons will remove all electrical power to computers and air conditioners in the room. Uninterruptible power supplies (UPS's) will also remove power to their attached equipment. Lights will remain on and wall

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outlets will remain live. These buttons are labeled and should be activated **only in a life threatening emergency**, such as, electrocution. For fire emergency, you must exit the building.

Computer Room Security

Access to all computer rooms is through Fermilab ID card readers. Only those people who have reason to enter a computer room and who have read this document and the Computer Room Hazard Analysis will be granted access. This computer room access form, <http://cdorg.fnal.gov/fop/FermilabCompterRoomSecurityAccess.pdf>, must be filled out and signed by your CS supervisor or a CS representative manager (if you are not a CS employee), and given to the CS building manager for access.

All FCC and GCC computer rooms are DOE designated Property Protection Areas (PPA) where the security is higher than in most other lab areas. Access is strictly limited to qualified personnel only as above. DO NOT allow a person who you do not know or who you are not sure has clearance to enter a computer room on your ID card. This practice of tailgating or piggybacking is NOT ALLOWED.

Computer Room Modifications

Any work which requires a modification to a computer room must be reviewed and approved in advance by Data Center Operations. Modifications include, adding or removing computers or racks, plugging or unplugging equipment.

Work Rules

1. Persons in computer rooms must not touch breakers and controls on any electric distribution panel, power distribution unit, UPS or air conditioning unit. These are both safety and operational hazards. You should never reset a tripped electrical breaker. You should always contact Data Center Operations (see contact list below).
2. Plugging or unplugging of computers into power outlets must be arranged in advance with Data Center Operations.
3. All equipment racks must have stabilizer feet flush to the floor, wheel stops or wheel lockdowns which are tightened so that the racks cannot roll.
4. If maintenance of any kind is performed that requires the adjustment or removal of cold aisle containment panels, please notify Data Center Operations so that the panels can be inspected and re-secured as necessary. Please ensure containment doors are closed when leaving the area.
5. Never set items on top of equipment or block access of any aisles, doors, air conditioning units, electrical or fire panels. Do not run wires or cables on top of the floor across an aisle.
6. Use safety cones and plastic chain as outlined in Computer Room Open Floor Tile Work Rules <http://cd-docdb.fnal.gov/cgi-bin/ShowDocument?docid=2826> to direct people away from hazardous areas. Floor tiles must be replaced at the end of each day's work.
7. Floor tile pullers for both solid and vented tiles are located at the computer room main exit doors. Use of stand-up of floor tile pullers for solid tiles is preferred to save on back/arm strain. Pullers must be returned when finished.
8. All computer equipment must be unpacked outside of computer rooms. Boxes and packing materials are not allowed in computer rooms. If this is not possible, arrangements must be made in advance with Data Center Operations.

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9. Each computer room is provided with an equipment lift which must be used for inserting equipment into racks. Before operating the lift, read the instructions posted on the lift if you haven't already done so. Using the lift is at least a two person operation, three people if the equipment is very heavy. Do not attempt to use the lift by yourself.
10. Nothing shall be stored under the computer room raised floor.
11. When working under the raised floor, cables, fire detectors, water leak detection wires and other subfloor devices and equipment must not be disturbed. If this is not possible, contact Data Center Operations.
12. No flammable liquids of quantity greater than 1 pint should be brought into the computer room without the approval of the CS DSO. Flammables must be removed at the end of each workday and stored in a flammables cabinet.
13. Depending on the type of work done, personal protective equipment, such as, safety shoes and/or glasses may be required. Supervisors must make the judgment and it should be part of the job hazard analysis (HA), whether verbal or written. Under no circumstances will bare feet be allowed. The Computing Sector allocates funds for safety shoes every year. The form to request safety shoes may be obtained from http://www-esh.fnal.gov/pls/default/esh_home_page.page?this_page=21597. Your supervisor must sign the form.
14. Food and beverages are not allowed in the computer rooms. There is a break room on the 2nd floor of the Feynman Computing Center. Smoking is not allowed in any buildings, computer rooms or other facilities.

Now you need to read the hazard analysis (HA) for working in CS computer rooms. It is published at:

<http://cd-docdb.fnal.gov/cgi-bin/ShowDocument?docid=627>

Task managers or service coordinators for subcontractors, T&M workers or others must keep subcontractor signed HA forms posted at the job site. Expired HAs must be kept on file with the task manager or service coordinator. Persons working in computer rooms with expired HAs will be stopped.

Now that you've read the above material, please take the [Online Test](#). Upon passing (4 out of 5 correct answers required), you may apply for ID card access to a computer room(s)

<http://cdorg.fnal.gov/fop/work.html>

Contact List

Function	Phone	Name	Email/Web Form
DSO	4081	Jon Ylinen	ylinenj@fnal.gov
Data Center Operations	2696	Adam Walters	awalters@fnal.gov
	2695	Tim Kasza	kasza@fnal.gov
	3537	Mark Thomas	mthomas@fnal.gov

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Appendix A

Computer Room Fire Safety Systems

Emergency Systems	FCC2	FCC3	WH8W “Fiber Central”	GCC A, B, C & Tape Robot Room (TRR)	GCC NRA NRB
Smoke detection	Ceiling & below floor	Ceiling	Ceiling & below floor	Ceiling & below floor	Ceiling
Fire Alarms and/or Strobes	Yes	Yes	Yes	Yes	Yes
Suppression	Yes* – manual halon	No	No	No*	No
Sprinklers	Yes	Yes	Yes	Yes	Yes
Emergency Power Off	Yes	Yes	Yes	Automatic & Manual	No
High Temp Shutdown	No	No	No	Yes, except TRR	No
Fire Rated Doors	Yes	Yes	Yes	Yes	Yes
Emergency Lights	Yes	Yes	Yes	Yes	Yes

* The tape robots in the FCC2 computer room and the GCC tape robot room each have an internal gaseous fire suppression system installed. Robot power is not removed in the event of an internal alarm.

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